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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/529,384	04/13/2000	SIMON A HOVELL	36-1319	7056

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EXAMINER
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STORM, DONALD L

ART UNIT	PAPER NUMBER
2654	70

DATE MAILED: 02/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/529,384	HOVELL ET AL	
	Examiner	Art Unit	
	Donald L. Storm	2654	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 January 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 6-18 and 21-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-18 and 21-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9</u>   | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### *Information Disclosure Statement*

2. A copy of the search report of the European Patent Office (paper 9) and the copies of the documents are present in the application file, and they have been considered by the Examiner.

### *Drawings*

3. The proposed substitute drawing submitted by the Applicant was received on January 16, 2004 (paper 8), and this drawing sheet has been entered; it is now the Fig. 9 of record.
4. The drawings are objected to under 37 CFR § 1.83(a) because Fig. 9 introduces confusion into features of the subject matter sought to be patented. See MPEP § 608.02(d).

The substitute Fig. 9 has labeled both item 1 and item 11 as "Dialogue Controller".

Previously, item 1 was identified in the specification (pages 10-13) as PABX.

Corrected drawings (or drawings with proposed corrections highlighted, preferably in red ink) are required in response to this Office action. Corrections may no longer be held in abeyance and ANY REQUEST TO HOLD CORRECTIONS TO THE DRAWINGS IN ABEYANCE WILL NOT BE CONSIDERED A *BONA FIDE* ATTEMPT TO PROVIDE A COMPLETE REPLY.

See 37 C.F.R. § 1.121(d) and § 1.85(a), published September 8 and September 20, 2000.

***Claim Informalities***

5. Claim 26 is objected to under 37 CFR 1.75(a) because the meaning of the phrase “the speech recognition apparatus” needs clarification. Because no speech apparatus was previously recited, it may be unclear as to what element this phrase is making reference. To further timely prosecution and evaluate prior art, the Examiner has interpreted this phrase to refer to --the pattern recognition apparatus--.

***Claim Rejections - 35 USC § 102***

**Klovstad**

6. Claims 1-3, 6, 7, 11, 12, 15-18, and 21-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Klovstad [US Patent 4,718,092], already of record.

7. Regarding claim 16, Klovstad [at title] describes speech pattern recognition and the claimed limitations recognizable to one versed in the art as the following elements:

means for generating and applying data, selecting model output, adding models, and assessing [at column 3, lines 31-column 4, lines 43, as process control circuitry, microprocessor, memory, and software programs];

generating a data sequence representative of a physical entity [at column 4, lines 45-48, as process audio input to provide a set of parameters characterizing input speech];

applying the sequence to a set of models [at column 4, lines 52-60, as compare the vector of acoustic parameters to reference templates];

the set is in a network of models including at least one model [at column 15, line 42, as graph form of word models of the grammar transformed into a lattice];

active models are used [at column 16, lines 9-10, as “active” kernels are processed];

selecting a subset of the outputs of the members of the set according to a predetermined criterion [at column 15, line 63-column 16, line 16, as choose the template likelihood score which maximizes probability and deactivate those less than a minimum score];

add models to the set dependent on the members of the subset [at column 16, lines 22-25, as make the next kernel active if the score of the last active kernel is less than some threshold];

each model represents a subpattern [at column 14, lines 15-16 and 44-45, as elementary units (kernels) that are grouped into words];

the model in use outputs an indication of the degree of matching between an input sub-sequence and the represented sub-pattern [at column 15, line 63-column 16, line 2, as the dynamic programming employing the template computes conditional probability of the speech unit corresponding to the template]; and

the further models take at least one subset member as input [at column 16, lines 45-47, as the “seed score” for (the first node of a kernel) is inherited from the preceding kernel];

the model as a finite state network [at column 14, lines 16-23, as the elementary units of speech (acoustic kernels) considers a Markov model];

assessing the values for each state of the members [at column 16, lines 3-29, as dynamic programming for computations and minimum score comparison to predetermined threshold];

deactivating states that do not meet a predetermined criterion [at column 16, lines 9-40, as deactivating (the lattice path of) a word at the kernel level for a particular time frame if the minimum score is greater than the threshold, for each “active” kernel at the time frame];

assess between applications of successive data sequences [at column 15, lines 59-63, as find the optimal path at each row in the lattice].

8. Regarding claims 17, 18, 21, and 22, Klovstad describes the additional claim elements using the same rationale as in the prior Office action (paper 5).

9. Regarding claim 23, Klovstad also describes:

the pattern to be recognized is a speech pattern [at column 15, lines 63-66, as a speech unit for which a template pattern is to be chosen].

10. Regarding claim 24, Klovstad describes the additional claim elements using the same rationale as in the prior Office action (paper 5).

11. Regarding claims 1-3, 6, 7, and 11-12, Klovstad describes the claim elements using the same rationale as in the prior Office action (paper 5).

12. Claim 15 sets forth limitations similar to claim 16. Klovstad describes the limitations as indicated there, where the means (process control circuitry, microprocessor, memory, and software programs) operate to provide the functionality of the method.

### ***Claim Rejections - 35 USC § 103***

#### **Klovstad and Tsuji**

13. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klovstad [US Patent 4,718,092] in view of Tsuji et al. [US Patent 4,601,057] using the same rationale as in the prior Office action (paper 5).

**Klovstad and O'Brien**

14. Claims 13-14 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klovstad [US Patent 4,718,092] in view of O'Brien [US Patent 5,479,489] using the same rationale as in the prior Office action (paper 5).

***Response to Arguments***

15. The prior Office action, mailed July 16, 2003 (paper 5), objects to the title, specification, and claims, and rejects claims under 35 USC § 102 and § 103, citing Klovstad and others. The Applicant's arguments and changes in AMENDMENT/RESPONSE filed January 16, 2004 (paper 8) have been fully considered with the following results.

16. With respect to objection to the title, the changes entered by amendment are sufficiently descriptive. Accordingly, the objection is removed.

17. With respect to objection to the specification as lacking reference signs used in the drawings, the replacement Fig. 9 shows the references that can be identified in the specification. Accordingly, the objection is removed.

18. With respect to objection to those claims needing clarification and confusing claim limitations, the changes entered by amendment provide clear descriptions of the claimed subject matter. Accordingly, the objections are removed. Please see new grounds of objection.

19. With respect to rejection of claims under *35 USC § 102* and *§ 103*, citing Klovstad alone and in combination, the Applicant's arguments appear to be as follows:

a. The Applicant's argument appears to be that Klovstad always deactivates all states of a word whenever deactivation occurs. This argument is not persuasive because Klovstad [at column 2, lines 36-40] explicitly points out that kernels of the word are deactivated, but other kernels remain, called active kernels, that have not been deactivated. Klovstad [at column 16, lines 14-15] uses the phrase "the word is deactivated"; however, this description occurs in the middle of a description of a recursive dynamic programming loop to recognize an utterance. This part of Klovstad's [at column 14, lines 42-55] recognition is before syntactic constraints at the grammar level; this part of the recognition process works at the word level (Fig. 6), at which the elementary speech units (kernels) exist. Klovstad's "word is deactivated" at a current frame time by deactivating the kernel on the path through the utterance lattice (Fig. 10) at that frame time, without regard to whether the frame corresponds to the end of a word. All the kernels from the beginning to the recognized end of a word are not deactivated unless they happen to meet another criterion, namely, that the word's kernels do not have any arcs leading to subsequent kernels (see column 17, lines 23-30), or later corresponding to a syntactical test. .

b. The Applicant's argument appears to be that Klovstad waits until the endpoint of a word is determined before deactivating states (and then deactivates all states of the word). This argument is not persuasive because Klovstad [at column 16, lines 12-20] deactivates the word at any frame time at which the criterion is met. Furthermore, deactivating Klovstad's word does not necessarily entail deactivating all kernels of the word, only the kernel at the current time and other kernels that have inactive links to the deactivated one [see column 27, lines 21-33]. However, Klovstad [at column 16, lines 63-column 17, line 4] explicitly does not deactivate all kernels of



entire words so that subsequent kernels can be activated, if it should happen that not all kernels are active when a word end is identified.

The Applicant's arguments have been fully considered but they are not persuasive. Accordingly, the rejections are maintained.

***Conclusion***

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

21. Any response to this action should be mailed to:

**Mail Stop AF**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**or faxed to:**

(703) 872-9306, (for formal communications; please mark "EXPEDITED PROCEDURE")

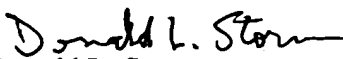
**Or:**

(703) 872-9306, (for informal or draft communications, and please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA (Sixth Floor, Receptionist).

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald L. Storm, of Art Unit 2654, whose telephone number is (703) 305-3941. The examiner can normally be reached on weekdays between 8:00 AM and 4:30 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (703) 305-9645.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Donald L. Storm  
February 12, 2004

  
RICHEMOND DORVIL  
SUPERVISORY PATENT EXAMINER